REMARKS

Claims 1-3, 5-18, 20-23, 25-47 were previously presented. Claims 4, 24, and 48-73 are canceled. New claims 74 and 75 are added. Claim 19 is currently amended. Accordingly, Claims 1-3, 5-23, 25-47, and 74-75 are pending in the application.

Objection to Specification and Drawings

The cancellation of claim 4 addresses the objections to the drawings and specification.

Rejection of Claim 1 Under 35 USC §102(b)

Claim 1 stands rejected under 35 USC §102(b) as being anticipated by U.S. Patent Number 5,147,739 (Beard).

Since Beard does not disclose the claimed gradient, this rejection is an inherency-based rejection. In support of this rejection, the Office Action argues that "the burden shifts to applicants to provide evidence (not arguments) comparing the prior art invention of Beard to the present invention." However, MPEP §2212(IV) provides that before this burden shifts to the Applicant, the "examiner must provide a rationale or evidence tending to show inherency." Further, "the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy,* 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). Additionally, "the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

The Office Action does not provide the required extrinsic evidence. For instance, the Office Action does not present any reasoning supporting the position that the chemistry presented in Beard necessarily results in the claimed gradient. For instance, Beard does not disclose a chemistry that the Applicant disclosed would provide the claimed gradient. In particular, Beard teaches an intercalation compound that can be "a transition metal chalcogenide or oxide" or can be represented by $Li_xM_aX_b$. The mere use of these compounds would not result in the claimed gradient. As a result, the Office Action would

have to argue that the claimed gradient resulted from one of these compounds serving as the second active material precursor discussed in Applicant's specification. However, Applicant's specification does not teach that a compound within the scope of Beard's disclosed intercalation compound (transition metal chalcogenide or oxide" or $Li_xM_aX_b$) would serve a **second active material precursor**. As a result, the Office Action cannot argue that Beard achieves the claimed result by using the same chemistry.

Further, the Office Action does not present extrinsic evidence that Beard's "lithium or lithium alloy" (labeled 14) **necessarily** intercalates into Beard's intercalation compound. Even if the Office Action had presented such evidence, the inherency rejection still would not be supported. For instance, even if the Office Action had presented evidence that Beard's "lithium or lithium alloy" **necessarily** intercalated into Beard's intercalation compound where it formed a gradient of "lithium or lithium alloy," the claimed gradient still would not result. For instance, the claimed gradient is a gradient of a **second** active material. However, a gradient of "lithium or lithium alloy" in Beard's intercalation compound would be a gradient of the **first** active material rather than a gradient of a **different** active material as required by the use of the term **second** active material in the claims.

Because the Office Action does not provide any extrinsic evidence supporting an argument that Beard **necessarily** achieves the claimed gradient, the Applicant respectfully requests that the evidence required by MPEP §2212(IV) be provided. In the absence of this evidence, the rejection should be withdrawn.

Rejection of Claim 11 Under 35 USC §102(b)

Claim 11 stands are rejected under 35 USC §103(a) as being unpatentable over Beard in view of U.S. Pre-Grant Publication Number 2002/0004169 (Yamada).

Since Claim 11 depends from claim 1, claim 11 recites "an anode having a first medium including a first active material and a second medium having a concentration gradient of a second active material" wherein "the second active material includes lithium, silicon, and oxygen." Accordingly, the cited art must teach or suggest an anode that has first active medium and a second active material that has a gradient of a material that includes lithium, silicon, and oxygen.

The Office Action argues that "it would have been obvious ... to use LiSiO as the active material for the intercalating layer in Beard. However, it is not clear how or why substituting LiSiO for the intercalating layer in Beard would change the nature of the LiSiO such that a gradient of LiSiO results or such that a gradient of another material that includes lithium, silicon, and oxygen results. Further, in order to support the inherency rejection, the Office Action would have to present extrinsic evidence showing that substituting LiSiO for the intercalating material in Beard would necessarily result in a gradient of a material that includes lithium, silicon, and oxygen. Since this evidence has not been presented, the Applicant respectfully requests that the required extrinsic evidence be presented. In the absence of this evidence, the rejection should be withdrawn.

Rejection of Claim 19 Under 35 USC §102(b)

Claim19 stands rejected under 35 USC §102(b) as being anticipated by U.S. Patent Number 5,147,739 (Beard).

Claim 19 is amended to recite that the "the first active medium including lithium metal and the second active including SiO and the second active material including LiSiO." Since Beard does not teach a first active medium including lithium metal with a second active including SiO and a second active material including LiSiO, Beard does not anticipate claim 19.

Rejection of Claims 34 and 41 Under 35 USC §102(e)

The rejection of Independent claims 34 and 41 is dependent on the claimed limitations being an inherent result of the teachings in Beard. As discussed with respect to claim 1, the extrinsic evidence needed to support these inherency rejections has been respectfully requested. In the absence of this evidence, the rejection should be withdrawn.

Rejection of Claims 2-3, 5-18, 20-23, 25-33, 35-40, 42-47, and 74-75

Since each of these claims depends directly or indirectly from a claim that is believed to be in condition for allowance, these claims are also believed to be in condition for allowance.

Double Patenting Rejection

Claims 1-47 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 5, 7, 8, 13-17, 20-22, 24, and 27 of co-pending U.S. Patent Application serial number 10/719,279 in view of Beard. U.S. Patent Application serial number 10/719,279 has been abandoned.

Future Prosecution

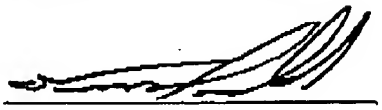
In preparation for future prosecution, the Applicant submits the following documents. At this time, the Applicant makes no representation regarding the content of these documents.

1. http://www.everyscience.com/Chemistry/Glossary/I.php as downloaded on June 17, 2008.

CONCLUSION

The Examiner is encouraged to telephone the undersigned with any questions.

Respectfully submitted,



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Ideal Gas: See **Perfect Gas**

Ideal Solution: A solution in which there are no interactions between the **solvent** and the **solute** particles.

Induction: A more electronegative element will inductively withdraw electron density along a σ bond, polarising the bond. This will stabilise carbanions, because the negative charge is somewhat pulled away from the carbon centre and spread a bit more.

Inert-Pair Effect: The instability of compounds with a p-block element in the **oxidation state** N relative to the N-2 state for elements beyond the first transition series, due to the low lying nature of electrons in the 4s **orbital**.

Inert: A species is **inert** if it has a low kinetic reactivity.

Infinite Square Well: Special case of the **particle in a box** where a particle is confined to a region by two potential walls that rise instantaneously to infinity. Within these walls, the potential **energy** is zero.

Initiation: In **radical** reactions, the **initiation** of the reaction by the creation of a radical **species** that will begin the chain reaction.

Inner-Sphere Mechanism: An **electron transfer** reaction which proceeds with the two ions forming bonds to a common shared **ligand**.

Insulator: This is a compound with negligible electrical conductivity, typically with a large **band gap** between the highest fully occupied band and the lowest fully unoccupied band.

Integrand: The function in an integral that is actually integrated; the portion that comes between the integral sign and the "dvariable".

Intensity: The **intensity** of radiation can be measured as the number of photons that collide with a surface one metre square per unit time. As such, it is quite distinct from the energy of the radiation, each **photon** having an energy hν.

Intercalation Compound: A compound formed when a guest molecule or **ion** is inserted into cavities or other spaces, particularly between layers, in a host compound, resulting in little change of structure in the host compound.

Interchange Mechanism: The **mechanism** for the **substitution** of ligands of a **complex** where the **rate determining step** is the **concerted addition** of the entering ligand and loss of the leaving ligand, such that the entering and leaving ligands are both bonded to the metal ion in the **transition state** complex.

Intermediate: An **intermediate** in a reaction can be isolated. It is a species that is in a local energy minimum, i.e. it needs to be further activated to form the **end products**. It is not the same as a transition state.

Internal Energy: The total energy of a **system**. It is a **state function**, so depends solely upon the current state of the system (determined by variables such as pressure, temperature, etc).

Interstitial: This is a hole in the **lattice** which is not occupied in the ideal structure, an example being the octahedral holes in the fluorite structure.

Intrinsic Defects: These are defects brought about in a solid due to favourable thermodynamics of formation, and without any external influence.

Intrinsic Semiconductor: A **semiconductor** whose conduction behaviour is brought about only by the thermal **promotion** of electrons from the **valence band** to the **conduction band**.

Inversion: If a **chiral** centre changes configuration during the course of a reaction, **inversion** has occurred. See also **retention**.

Ionic Atmosphere: The **Coulombic** interaction between particles in an ionic solution leads to a tendency for particles to be surrounded by an **ionic atmosphere** in which particles of the opposite charge predominate.

Ionic Model: This treats solids as being made up of rigid, oppositely charged spheres.

Ionic Radius: This gives the size of an ion when considered as a rigid sphere in the **ionic Model**.

Ionization Energy: The energy change accompanying the loss of an electron from a species.

Ion: An atom or group of atoms which has a charge imbalance due to a gain or loss of electrons.

Ipso: A position on a phenyl ring - see **ortho**.

Irreducible Representation: The basic types of behaviour that orbitals may show when the symmetry operations of the group are applied to them.

Irving-Williams Series: The series of divalent metal cations when arranged in order of the magnitude of the stability constants for the metal ion complex with a wide range of ligands.

Isoelectronic: Two species are **isoelectronic** if they have the same electronic configurations.

Isolated system: A system that can exchange neither energy nor matter with its **surroundings**.

Isomerise: To convert to a different **isomer**.

Isomer: Compounds with the same composition and molecular weight, but differing structure are said to be isomers.

Isotope: Atoms with the same **atomic number** but differing mass numbers are isotopes. They differ only in the number of neutrons in the nucleus.